**Results** Providers overwhelmingly focused on parental beliefs as barriers to HPV vaccination, though noted other factors including the lack of school requirements and barriers related to serving a low-income, immigrant clientele. Perceived parental misconceptions acting as barriers included the belief that adolescents do not need vaccinations and that no-cost vaccine programs like Vaccines for Children are only available for younger children. Perceived parental concerns that the vaccine will promote sexual activity were prevalent, especially for parents of 11–12-year-old girls, which prompted providers to frame HPV vaccine as a "routine," "cervical cancer" vaccine. However, providers felt mothers with experience with abnormal Pap tests and those with a supportive friend or relative were more likely to request HPV vaccine. Providers noted that for Hispanic parents the "preferred" source of information is peers; if the "right people" in the community were supportive of HPV vaccine, parents were more willing to vaccinate. Most providers noted that because HPV vaccine is not "required" for school, it was difficult to get eligible girls into clinic and to reinforce to parents the need for the vaccine. Other barriers included lack of immunisation records among immigrant parents and a difficult-to-reach, mobile clientele.

**Conclusions** Providers noted a number of barriers to HPV vaccination, including some perceived parental misconceptions that could be addressed with education about the need for adolescent vaccines and available free vaccine programs. Because community support appears particularly important to Hispanic parents, the use of promotoras—peer liaisons between health organisations and the community—may increase HPV vaccine uptake in this population. Future research should explore how well providers' perceptions align with parents' actual concerns.

## P5-S6.15 SOCIAL WORK SERVICES AT NEW YORK CITY HEALTH DEPARTMENT STD CLINICS

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**Objective** To describe the introduction of social work services in New York City Department of Health & Mental Hygiene Bureau of STD Control (NYC DOH) clinics.

**Background** Each year the NYC DOH STD clinics serve over 120 000 patients. Services include free and confidential testing for HIV and other STDs, STD treatment, emergency contraception and the hepatitis vaccine. Social work services were introduced at the STD clinics in 2008 to address mental health and social service needs that often drive high risk sexual behaviour, such as substance abuse, domestic violence and untreated mental illness. Social work services include short-term counselling and referrals to outside agencies.

**Methods** Patients are routinely screened for social work and mental health needs during interviews with physicians or disease intervention specialists (DIS), and are referred to a social worker or mental health counsellor assigned to the clinic. As appropriate, patients are provided with behavioural interventions utilising motivational interviewing techniques and short term counselling. Patients are also referred to local resources for additional services.

**Results** Since July 2009, 471 patients were referred to the on-site social worker or mental health counsellor and 460 (97%) were evaluated. 40/460 patients (9%) received short-term counselling at a NYC DOH STD clinic. 200/460 patients (43%) were referred to local agencies specialising in domestic violence/sexual assault, public health benefits/health insurance to legal and housing services. 100/460 patients (22%) were referred to a health clinic and 120/460 (26%) patients were connected to mental health agencies. All 40 patients who received short term counselling at a DOH STD clinic returned for follow-up social work visits, independent of STD care.

**Conclusion** In a busy STD clinic, social work services can be introduced and utilised by patients, allowing physicians and DIS to focus on clinical patient issues. Offering more comprehensive care may be expected to improve patient outcomes and care. Follow-up data are required to measure the long-term impact of these services on sexual risk-taking and on rates of STDs and HIV.

## P5-S6.16 NOVEL MODULAR TEACHING OF HIV PATIENTS IN RESOURCE-LIMITING SETTING: EFFECT OF LEARNING OUTCOMES ON ADHERENCE TO HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART)

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**Background** Patient education is a crucial aspect of antiretroviral treatment of HIV patients and plays a significant role in adherence to HAART, development of OIs, hospitalisation and mortality. Unfortunately, in most resource-poor setting, this is not often done, and when it is done, often casually.

**Objective** Objective was to compare a modular teaching method (MTM) with traditional patient education (TTM), and evaluate its effectiveness on adherence to HAART, development of OIs, hospitalisation and mortality.

**Methods** 420 HIV-positive patients on HAART, zidovudine, lamivudine and nevirapine, were recruited and randomly divided into subject and control groups. A pre-test and post-test time-series design was used to collect data using a 30-item knowledge and skills assessment schedule with items rated on a 5-point Linkert-type scale. The schedule was pre-tested on 50 patients with Cronbach's Score of 0.92 and a test-retest co-efficient of 0.89 at a 4-week interval. The MTM consist of 10 modules which address issues on adherence such as benefits of treatment, family and social support, adverse drug effects, psychological factors, substance abuse, patient-provider relationship, patient's self efficacy and effect of traditional/cultural values. MTM was used to educate subject group while the controls received the traditional teaching by nurses on the wards. Teaching was done throughout the period of hospitalisation. All the patients were followed for 8 months at 4-week intervals via outpatient clinic and home visits. $\chi^2$ and t-tests were used; $p<0.05$ was considered significant.

**Results** Mean age was 28.7±6.9 years. Mean adherence rate for the subjects was 98.9±1.0% and for controls, 87.6±2.4% ($p<0.001$). Frequency of OIs per patient per month was lower in subjects than in controls (0.51 vs 1.31, $p=0.002$). Mean number of readmissions per patient per month during the 8-month follow-up was 0.18±0.01 for subjects and 0.89±0.02 for controls ($p=0.0012$). Subject group had shorter hospital stay (6.2±2.6 days vs 15.7±4.8 days, $p=0.002$) and lower mortality ($p=0.008$) than the controls.

**Conclusion** MTM has significant effect on adherence to HAART, development of OIs, readmission rate, hospital stay and mortality. MTM is recommended as a core aspect of adherence counselling and antiretroviral treatment programme.

## P5-S6.17 FACILITATING ACCESS TO SEXUAL HEALTH SERVICES FOR MEN WHO HAVE SEX WITH MEN (MSM) AND TRANSGENDER PERSONS IN GUATEMALA CITY

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**Background** Men who have sex with men (MSM) and transgender persons are disproportionately affected by sexually transmitted infections (STIs), including HIV, in Guatemala. Access to integrated sexual health prevention and treatment services is limited. The purpose of this study was to identify barriers to accessing sexual health services among gay, bisexual, and non-gay identified MSM and male-to-female transgender persons in Guatemala City to inform the development of high quality and population-friendly services that are sensitive to the needs of this population.

**Methods** Semi-structured in-depth interviews were conducted with 27 purposively sampled participants, including 7 transgender, 11 gay, 5 bisexual, and 4 non-gay-identified participants, in Guatemala City. Interview topics included experiences with sexual health services, perceived barriers to access, social and sexual network characteristics, and HIV risk behaviours. Topical codes were developed based on readings of interview transcripts and codes were applied to the data using the qualitative software Atlas.ti. Data were compared between study sub-groups using thematic matrices and analytic memos.

**Results** Across all participants, public clinics were the most commonly used sexual health services due to their lower cost and greater accessibility, but many participants provided examples of discrimination, violation of confidentiality, and distrust in the quality of services offered. Transgender and gay participants preferred clinics where they felt a sense of belonging while non-gay identified participants preferred clinics that were not associated with the MSM community. The most prominent barriers to sexual health services described by participants included fear of discrimination related to sexual identity and/or behaviour, fear of having HIV and the associated stigmatisation, cost, and lack of social support.

**Conclusions** Findings highlight the need to strengthen and expand existing public STI clinics to improve access to services among MSM and transgender populations in Guatemala City. These services must address the multiple layers of stigma and discrimination that MSM and transgender persons experience related to identity, behaviour, and STI/HIV. Insights from this study are currently being applied to the implementation of two public clinics in Guatemala City that seek to provide a discrete, non-judgemental environment where individuals can seek affordable services without fear.

## P5-S6.18 COST-EFFECTIVENESS OF INTRODUCING RAPID SYPHILIS TESTING IN THE AMAZON REGION, BRAZIL

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**Background** This study aims to estimate the costs-effectiveness of introducing a universal syphilis screening and treatment package with an enhanced quality assurance system among isolated indigenous populations in the Amazon region of Brazil.

**Methods** In three indigenous health units (Umariacu II, Vendaval and Betania), incremental financial and economic costs of the full programme were collected including start-up, training and quality assurance, supervision and implementation. These units were chosen because of their different geographic access levels (easy to very difficult) so that results can be extrapolated to other health districts of the Amazon state. Unit cost per person screened and treated was estimated as well as the cost-effectiveness per adverse outcome and DALY averted. This study also provides the first data on prevalence rates in this population.

**Results** Using rapid syphilis tests, the prevalence of syphilis was 1.56% and 2.2% in the sexually active population and in pregnant women respectively at the three health units. The total financial cost of syphilis screening 4173 people was $277 853. The total economic cost was $285 995.67. The economic cost per person screened was US$68.53 and treated was US$4028.11. The cost per DALY saved was US$484.31 (including stillbirth). Personnel costs contributed the largest input category consisting of 87.5% of the total costs, due to the high cost of labour of FUNASA (National Health Foundation) personnel. Training costs are also high due to the frequency of staff turnover and thus the need for repeated trainings.

**Conclusions** Although the cost per person screened and per person treated for syphilis could be considered high by international standards, the only alternative to screening in the health units for this population would be transporting people to the nearest larger town for screening in the nearest health facility with a laboratory. This would clearly exceed the costs of treating the cases locally by far. This therefore makes rapid syphilis testing the most cost-efficient alternative for testing these remotely located populations. Additionally, because of cultural behaviour of the indigenous populations and the fact that some of them are located near border regions of Brazil, the prevalence scenario can change quickly, increasing the number of syphilis and HIV cases in the absence of prompt identification and treatment.

## P5-S6.19 PREVALENCE AND INCIDENCE OF SEXUALLY TRANSMITTED INFECTIONS AMONG FEMALE SEX WORKERS IN TWO CITIES IN INDIA: IMPLICATIONS FOR STI CONTROL STRATEGIES

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**Background** India is a large country with marked heterogeneity in prevalence of sexually transmitted infections (STIs) which has implications for STI control strategies. The study objective was to measure the prevalence and incidence of common bacterial STIs in a cohort of female sex workers (FSWs) in known high STI prevalence cities in response to a package of standardised interventions under Avahan, the India AIDS Initiative of the Bill & Melinda Gates Foundation.

**Methods** FSWs attending clinics were followed up periodically over 6–9 months. At every visit, vaginal swabs were tested for *Neisseria gonorrhoeae* (GC) and *Chlamydia trachomatis* (CT) by Gen-Probe APTIMA Combo II. During the baseline and final visits, vaginal swabs were tested for *Trichomonas vaginalis* (TV) by PCR and blood was tested for syphilis using Rapid Plasma Reagin (RPR) with confirmatory *Treponema pallidum* Haemagglutination Assay (TPHA). All participants received presumptive treatment for gonorrhoea and chlamydia at the baseline visit and syndromic STI management at all subsequent visits.

**Results** A total of 417 FSWs were recruited, 360 returned for at least one follow-up visit, and 282 completed the final visit. The total follow-up period was 109.4 person years (median 0.18 years, maximum 1.07 years). Self-reported consistent condom use with commercial and regular partners was 70% and 17%, respectively. A substantial proportion of cervical and trichomonal infections were asymptomatic (see Abstract P5-S6.19 table 1). The incidence of GC/CT and TV was 1.0 and 2.0 per person year respectively. Three new cases of latent syphilis were detected at the final visit.

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